Xantrex™ GT100 E 100 kW Grid-Tied Photovoltaic Inverter

Planning and Installation Manual

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Schneider Electric

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About This Manual

Purpose

The purpose of this Planning and Installation Manual is to provide explanations and procedures for planning and installing the Schneider Electric Xantrex GT100 E 100 kW Grid-Tied Photovoltaic Inverter. For information on Operating or Troubleshooting the inverter, refer to the Xantrex GT100 E 100 kW Grid-Tied Photovoltaic Inverter Operation and Maintenance Manual (Part # 152365).

Scope

The Manual provides safety guidelines, detailed planning and setup information, and procedures for installing the inverter.

Audience

The Manual is intended for use by anyone who plans to construct or install a system involving the Xantrex GT100 E 100 kW Grid-Tied Photovoltaic Inverter. Installers must meet all local and state code requirements for licensing and training for the installation of Electrical Power Systems with AC and DC voltage to 650 volts.

Organization

This Manual is organized into four chapters and two appendices:

Chapter 1, “Introduction” provides information about the features and functions of the Xantrex GT100 E 100 kW Grid-Tied Photovoltaic Inverter.

Chapter 2, “Planning” provides information to help plan the installation of the Xantrex GT100 E 100 kW Grid-Tied Photovoltaic Inverter.

Chapter 3, “Installation” describes the procedures needed to install the Xantrex GT100 E 100 kW Grid-Tied Photovoltaic Inverter. This section includes unpacking and moving instructions, mounting instructions, and cabling instructions.

Chapter 4, “Verification and Commissioning” provides a method for ensuring the installation of the Xantrex GT100 E is correct and complete and provides commissioning procedures.

Appendix A contains the specifications for the Xantrex GT100 E 100 kW Grid-Tied Photovoltaic Inverter.

Appendix B, “Commissioning Test Record” contains the form to be filled out in order to keep a record of the commissioning test results for the Xantrex GT100 E 100 kW Grid-Tied Photovoltaic Inverter.

Conventions Used

The following conventions are used in this guide.

WARNING

Warnings identify conditions or practices that could result in personal injury or loss of life.

CAUTION

Cautions identify conditions or practices that could result in damage to the unit or other equipment.

Important: These notes describe things which are important for you to know, but not as serious as a caution or warning.

Abbreviations and Acronyms

AC	Alternating Current
ANSI	American National Standards Institute
BTU	British Thermal Unit
CCU2	Converter Control Unit 2
CFM	Cubic Feet per Minute
CW	Clockwise
DC	Direct Current
DSP	Digital Signal Processor
FPGA	Field Programmable Gate Array
GUI	Graphical User Interface
IEEE	Institute of Electrical and Electronics Engineers
IGBT	Insulated Gate Bipolar Transistor
IPM	Intelligent Power Module
kcmil	1000 circular mils
LAN	Local Area Network
MPPT	Maximum Peak Power Tracker
NFPA	National Fire Protection Association
PBX	Private Branch Exchange
PPT	Peak Power Tracker
PSL	Phase-Shift Loop
PV	Photovoltaic
UFCU	Universal Frontpanel Control Unit (Front Panel User Interface)

Related Information

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Important Safety Instructions

SAVE THESE INSTRUCTIONS - DO NOT DISCARD

This manual contains important safety instructions for the Xantrex GT100 E 100 kW Grid-Tied Photovoltaic Inverter (Xantrex GT100 E) that shall be followed at all times.

WARNING: Exercise extreme caution

Read and keep this Planning and Installation Manual for future reference. Before using the Xantrex GT100 E, read all instructions, cautionary markings, and all other appropriate sections of this manual. Failure to adhere to these warnings could result in severe shock or possible death. Exercise extreme caution at all times to prevent accidents.

WARNING: Shock hazard

The Xantrex GT100 E enclosures contain exposed high-voltage conductors. The enclosure doors should remain closed with the latches tightened, except during installation, maintenance or testing. These servicing instructions are for use by qualified personnel who meet all code requirements for licensing and training for the installation of Electrical Power Systems with AC and DC voltage to 650 volts. To reduce the risk of electric shock, do not perform any servicing other than that specified in the installation instructions unless you are qualified to do so. Do not open the cabinet doors if extreme moisture is present (rain or heavy dew).

WARNING: Lethal voltage

In order to remove all sources of voltage from the Xantrex GT100 E, the incoming power must be de-energized at the source. This may be done at the main utility circuit breaker and by opening the AC disconnect switch on the Xantrex GT100 E. Review the system configuration to determine all of the possible sources of energy. In addition, the source of the Auxiliary Control Power must be de-energized plus allow 20 minutes for the DC bus capacitors, located within the cabinet, to discharge after removing power.

WARNING: Amputation hazard

The inverters contain integrated ventilators including rotating ventilator wheels. Do not place fingers in ventilator.

WARNING: Incorrect usage

The Xantrex GT100 E is not intended for use in connection with life support systems or other medical equipment or devices.

Risks

WARNING: Shock hazard

Parts of the condenser charge will still be energized for a maximum of 20 minutes after being disconnected.
Open device cover plates or doors only after the device is disconnected and discharged. Check whether the device is no longer live (DC voltage) including terminals PV+ and PV-.

WARNING: Explosion hazard

The IGBT module may explode in the event of a major malfunction.
Do not operate larger devices while the pivoting part is opened.

WARNING: Crush hazard

The inverters have a very high balance point and can easily topple down. Only move while exercising care.

WARNING: Amputation hazard

The inverters contain integrated ventilators including rotating ventilator wheels. Do not place fingers in ventilator.

WARNING: Burn hazard

Inverters contain components that become hot during normal operation. Do not touch.

CAUTION: Overheating damage

The inverters have a supply air and exhaust air area, which must remain unobstructed. The device can overheat and be destroyed if the installation signs are not adhered to.

CAUTION: Electrostatic damage

Inverter electronics can be destroyed when touched and when electrostatically charged. Discharge via earth potential before touching and wear appropriate protective gear.

CAUTION: Component short

No connections or disconnections are allowed at the terminal strips or internal connectors during operation.

Turn device off before performing terminal work; wait 5 to 20 minutes (condenser charge) and recheck to ensure device is no longer live.

General Safety Precautions

1. When installing the Xantrex GT100 E use only components recommended or sold by Schneider Electric. Doing otherwise may result in a risk of fire, electric shock, injury to persons, and will void the warranty.
2. Do not attempt to operate the Xantrex GT100 E if it has been dropped, or received more than cosmetic damage during transport or shipping. If the Xantrex GT100 E is damaged, or suspected to be damaged, see the Warranty for this unit in the Xantrex GT100 E 100 kW Grid-Tied Photovoltaic Inverter Operation and Maintenance Manual (Part # 152365).
3. To reduce the risk of electrical shock, lock-out and tag the Xantrex GT100 E before attempting any maintenance, service, or cleaning.

Personal Safety

Follow these instructions to ensure your safety while working with the Xantrex GT100 E.

Qualified Personnel

Only qualified personnel should perform the transportation, installation, initial operation and maintenance of the Xantrex GT100 E (IEC 364 or CENELEC HD 384 or DIN VDE 0100 and IEC 664 or DIN VDE 0110). Follow all national accident prevention regulations.

Qualified personnel, within the meaning of these basic safety regulations, will be people who are familiar with the installation, assembly, start-up and operation of the Xantrex GT100 E and have the appropriate qualifications with respect to their functions.

Safety Equipment

Authorized service personnel must be equipped with standard safety equipment including the following:

- Safety glasses
- Ear protection
- Steel-toed safety boots
- Safety hard hats
- Padlocks and tags
- Appropriate meter to verify that the circuits are de-energized (1000 Vac and DC rated, minimum)

Check local safety regulations for other requirements.

Wiring Requirements

WARNING: Fire hazard

In accordance with the National Electrical Code, ANSI/NFPA 70, connect only to a circuit provided with 200 amperes maximum branch circuit overcurrent protection.

1. All wiring methods and materials shall be in accordance with the European Requirements, as well as all state and local code requirements (for example, DIN / VDE).
2. The Xantrex GT100 E has a three-phase output.
3. The AC power conductor wiring interfacing with the AC terminals in the enclosure are located at A, B, C, N. These terminals require the use of a crimp-on type ring terminal or compression-type lug. Keep these cables together as much as possible and ensure that all cables pass through the same knockout and conduit fittings, allowing any inductive currents to cancel. For torque values, see Table A-4 on page A–3. See Figure 3-8 on page 3–11 for the location of these terminals.
4. The DC power conductor wiring interfacing with the DC terminals is terminated in the enclosure. These terminals require the use of a crimp-on type ring terminal or compression-type lug. Keep these cables together as much as possible and ensure that all cables pass through the same knockout and conduit fittings, allowing any inductive currents to cancel. For torque values, see Table A-5 on page A–3. See Figure 3-7 on page 3–10 for the location of these terminals.
5. This product is intended to be installed as part of a permanently grounded electrical system as per the National Electric Code ANSI/NFPA70 and EU requirements, as well as all state and local code requirements (for example, DIN/VDE). The single point ground for the system is to be made at the ground bus bar in the AC interface enclosure.
6. The equipment grounds on the Xantrex GT100 E are marked with PE (see Figure 3-5 on page 3–8 for the location of this terminal).
7. AC overcurrent protection for the utility interconnect equipment (Grid-tie transformer) must be provided by the installers as part of the Xantrex GT100 E installation.

Operational Safety Procedures

Never work alone when servicing this equipment. A team of two is required until the equipment is properly de-energized, locked-out and tagged, and verified de-energized with a meter.

Thoroughly inspect the equipment prior to energizing. Verify that no tools or equipment have inadvertently been left behind.

Lockout and Tag

WARNING: Shock hazard

Review the system schematic for the installation to verify that all available energy sources are de-energized. DC bus voltage may also be present. Be sure to wait the full 20 minutes to allow the capacitors to discharge completely. Schematics are located inside the front door of the unit.

Safety requirements mandate that this equipment not be serviced while energized. Power sources for the Xantrex GT100 E must be locked-out and tagged prior to servicing. A padlock and tag should be installed on each energy source prior to servicing.

The Xantrex GT100 E can be energized from both the AC source and the DC source. To ensure that the inverter is de-energized prior to servicing, lockout and tag the Xantrex GT100 E.

To lockout and tag the Xantrex GT100 E:

1. Open, lockout, and tag the incoming power at the utility disconnect.
2. Open, lockout, and tag the AC disconnect switch on the enclosure. See Figure 1-4 on page 1–6 for the location of the AC disconnect switch.
3. Using appropriate means, open, lockout, and tag incoming PV circuits.
4. Using a confirmed, accurate meter, verify all power to the inverter is de-energized. A confirmed, accurate meter must be verified on a known voltage before use. Ensure that all incoming energy sources are de-energized by checking the following locations.
   a) AC Utility Terminals: (Bottom of A, B, C, and N)
   See Figure 3-8 on page 3–11 for the location of these terminals.
   b) PV Terminals: (PV+ and PV-)
   See Figure 3-7 on page 3–10 for the location of these terminals.

De-Energize/Isolation Procedure

WARNING: Shock hazard

The terminals of the DC input may be energized if the PV arrays are energized. In addition, allow 5 minutes for all capacitors within the main enclosure to discharge after disconnecting the Xantrex GT100 E from AC and DC sources.

The following procedure should be followed to de-energize the Xantrex GT100 E for maintenance.

To isolate the Xantrex GT100 E:

1. Turn the ON/OFF switch to the OFF position.
2. Place the Emergency switch in the active position (push in).
3. Open the AC interface disconnect switch.
4. Open, lockout, and tag the PV input circuit breaker at the PV array.
5. Open, lockout, and tag the AC Grid power circuit breaker at the Grid transformer.

Interconnection Standards Compliance

The Xantrex GT100 E complies with the German grid protection requirements of VDEW and the Spanish RD 661/2007.

The Xantrex GT100 E is designed to meet EN50178 and EN60204-1 specifications.

Refer to both documents for details of these recommendations and test procedures.

Intended Use

The Xantrex GT100 E may only be used in connection with PV modules. It is not suitable for any other application areas.

An initial operation (e.g. starting the intended operation) will only be allowed when observing the EMC guideline (89/336/EWG).

The Xantrex GT100 E complies with the 73/23/EWG low voltage directive requirements. The harmonized standards of the series EN 50178/DIN VDE 0160 in connection with EN 60439-1/DIN VDE 0660 part 500 and EN 60146/DIN VDE 0558 will be used for the inverters.

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1 Introduction

Chapter 1, “Introduction” provides information about the features and functions of the Xantrex GT100 E 100 kW Grid-Tied Photovoltaic Inverter.

This manual is for use by qualified personnel only.

Description of the Xantrex GT100 E

The Schneider Electric Model Xantrex GT100 E 100 kW Grid-Tied Photovoltaic Inverter is a single enclosure, three-phase power conversion system for grid-connected photovoltaic arrays with a rating of 100 kW. The Xantrex GT100 E inverter incorporates the innovative switching technology utilizing state-of-the-art IPMs (Intelligent Power Module), to convert the photovoltaic array's DC power to the utility's three-phase AC power. The power conversion system consists of a three-phase, pulse-width-modulated inverter, switchgear for isolation and protection of the connected AC and DC power systems and an isolation transformer. The system has very low standby and nighttime power consumption. The system has local communication access as well as remote communication access through a modem.

The Xantrex GT100 E uses state-of-the-art Intelligent Power Modules (IPMs), which provides low power losses during the conversion process. It uses the IPM devices with a gate drive circuit to interface the photovoltaic array with a utility grid. The Xantrex GT100 E consists of an inverter bridge, photovoltaic controller, and associated control electronics. The Xantrex GT100 E control software provides for complete overall system control with a variety of protection and safety features.

Operator Interface Controls

WARNING: Shock hazard

Turning the ON/OFF switch to the OFF position does not remove all hazardous voltages from inside the inverter. Before attempting to service the Xantrex GT100 E, follow the de-energize Lockout and Tag procedure on page xi.

The Xantrex GT100 E inverter enclosure is IP21 rated and contains the power electronic inverter bridge, electrical and electromechanical control components, power supplies, system sensing circuits, converter control unit 2 (CCU2), the AC and DC disconnects and the isolation transformer

Operator interface controls are located on the front door of the inverter enclosure. These controls include an ON/OFF switch, and a front panel user interface, comprised of a 4-line display and keypad. Additionally there is an AC disconnect and an emergency (E-STOP) push button.

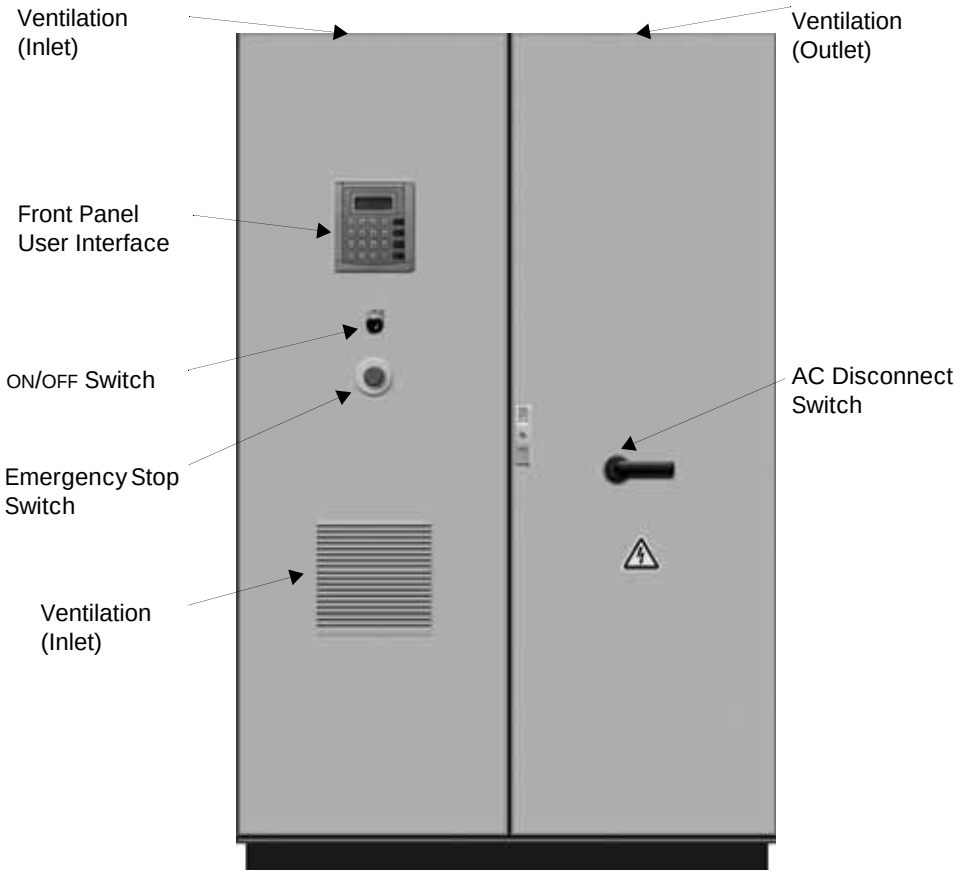

Figure 1-1 Xantrex GT100 E Operator Interface Components

ON/OFF Switch

WARNING: Shock hazard

Turning the ON/OFF switch to the OFF position does not remove all hazardous voltages from inside the inverter. Before attempting to service the Xantrex GT100 E, follow the de-energize Lockout and Tag procedure on page xi.

The Xantrex GT100 E incorporates a maintained position ON/OFF switch located on the front door of the inverter enclosure. Under normal conditions, the ON/OFF switch is in the ON position. Turning the switch to the OFF position will initiate an immediate controlled shutdown of the Xantrex GT100 E and open both the main AC and DC contactors within the unit. The main AC and DC contactors cannot be closed unless the switch is in the ON position. The Xantrex GT100 E is prevented from being restarted until the ON/OFF switch is turned back to the ON position.

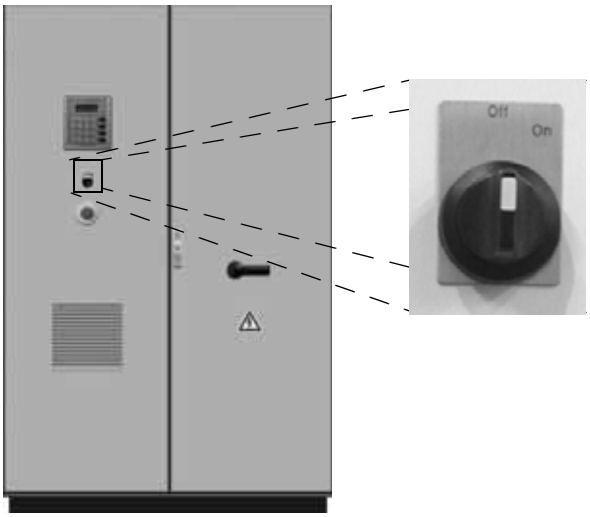

Figure 1-2 ON/OFF Switch

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Emergency Stop (E-STOP)

The Xantrex GT100 E incorporates a maintained position E-STOP pushbutton located on the inverter enclosure. Under normal conditions, the E-STOP pushbutton is in the CLOSED (extended) position. Pushing the pushbutton to the OPEN (depressed) position will initiate an immediate controlled shutdown of the Xantrex GT100 E and open both the main AC and DC contactors within the unit. The main AC and DC contactors cannot be closed unless the pushbutton is in the CLOSED (extended) position. The Xantrex GT100 E is prevented from being restarted until the E-STOP pushbutton is in the CLOSED (extended) position.

Provisions are supplied for adding a remote emergency stop circuit.

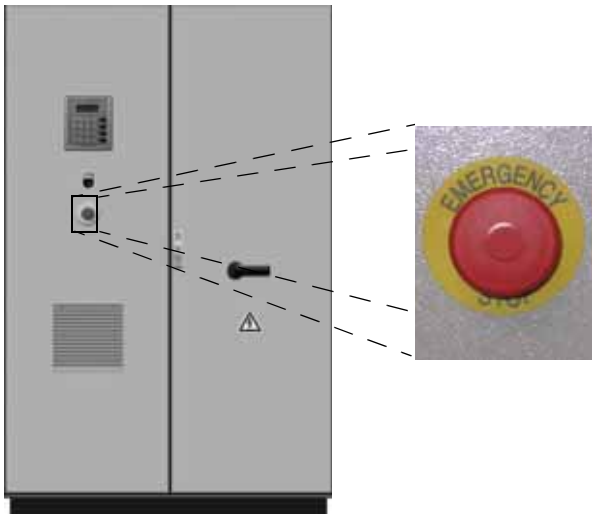

Figure 1-3 Emergency Stop

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AC Disconnect Switch

WARNING: Shock hazard

Disengaging the inverter enclosure door interlock switch does not remove all hazardous voltages from inside the inverter. Before attempting to service the Xantrex GT100 E, follow the de-energize Lockout and Tag procedure on page xi.

The AC disconnect switch is the primary disconnect for the inverter. The inverter's doors cannot be opened until the AC disconnect switch is in the OFF position. The AC disconnect switch interrupts the AC voltage supply to the inverter. Once the switch is open there is still voltage on the grid side of the switch. There is also DC voltage on the DC input terminal block and the input of the DC contactors.

To operate the inverter the AC switch must be in the ON position.

The Xantrex GT100 E inverter enclosure doors must be locked during normal operation.

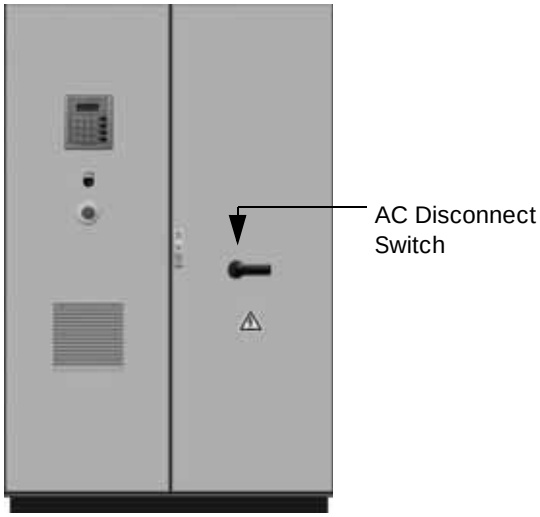

Figure 1-4 AC Disconnect Switch

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Front Panel User Interface

The Xantrex GT100 E has a front panel user interface which is comprised of a 4-line display screen for reporting basic system status and all fault conditions plus a keypad for configuration. The keypad is comprised of 20 touch-sensitive keys that provide a means to navigate through the menus and alter user-changeable settings. See the Xantrex GT100 E 100 kW Grid-Tied Photovoltaic Inverter Operation and Maintenance Manual (Part # 152365) for configuration and fault tracking details.

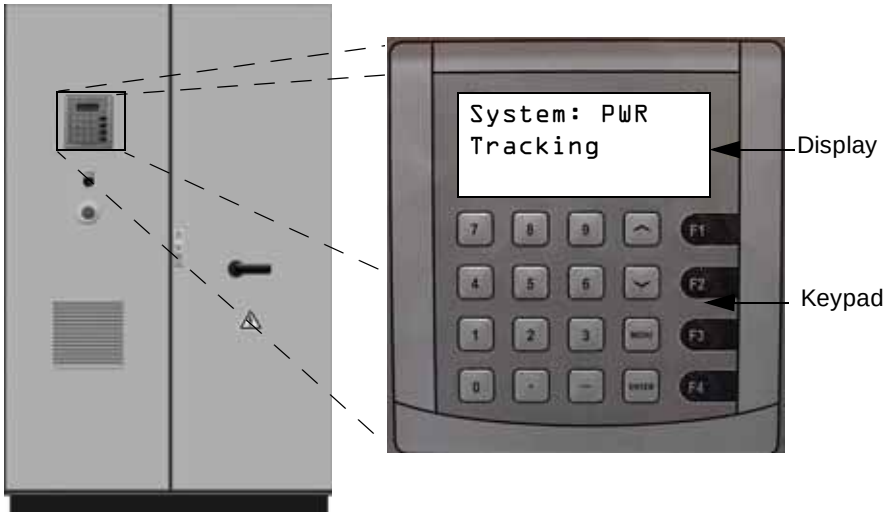

Figure 1-5 Front Panel User Interface

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Communication Features and Methods

The Xantrex GT100 E provides two types of information to the user:

- system status and/or fault information, and
- data logging information.

System status and fault information can be accessed using the user interface keypad and display or a personal computer using the PV View GUI (Graphic User Interface) software. Data logging requires the use of a PC using the PV View.

The Xantrex GT100 E communicates system status information to the user using the following methods.

- Front panel user interface keypad and display
- PC Connection (direct and/or remote) - PV View required (may require additional hardware)
- External Analog Monitoring - (Optional) (for example, irradiance, PV temperature, ambient temperature, wind speed) (requires additional hardware)

System Status and Fault Reporting

Basic system status and all fault conditions rising from within the Xantrex GT100 E are reported to the display. The unit stores the time and details of all faults in non-volatile memory. The 4-line display will show a fault code and a brief text description of the fault.

The fault value is also made available to the PV View GUI. The GUI has a more extensive description of the fault.

See the Xantrex GT100 E 100 kW Grid-Tied Photovoltaic Inverter Operation and Maintenance Manual (Part #: 152365) for details.

This information can also be accessed using a personal computer using the PV View GUI software either directly or remotely. Alternatively, the fault reporting can be accomplished using optional communication systems.

Types of status information include:

- Current Operating State or Goal State
- Fault Code (if applicable)
- Inverter State
- Line Voltage and Current
- Inverter Matrix Temperature
- Inverter Power
- PV State
- PV Voltage and Current
- PV Power
- Grid Frequency
- Peak Power Tracker Enabled

Data Logging

The inverter stores data values and software metrics for debugging. These values are stored within the CCU2 controller board in non-volatile memory. Data logging requires the use of a PC connection using the PV View.

The Data Logging features include:

- Operational Values
- Internal Metrics
- Data Log Acquisition
- Graphic Data Analysis
- Fault Log Acquisition
- Software Upgrade
- Accumulated Values
- Configurable Parameters

PC Connection Methods

Personal computers can be used to access the system status, control and programming features of the Xantrex GT100 E. Computers can be connected either directly or remotely using the appropriate optional hardware and software. Software is available to provide a graphic user interface that relates important system information. This software is called the PV View GUI.

Direct Access Connection

The Xantrex GT100 E can be directly accessed by a computer using the local communication access port.

Remote Access Connection

The Xantrex GT100 E can be remotely accessed through several methods such as a telephone connection or local area network (LAN), wireless modem or fax modem. Optional hardware and software is needed for these features; they are available for purchase for use with the Xantrex GT100 E to enhance its communications capability. The additional Xantrex GT100 E options can be field installed. Contact a Schneider Electric distributor for further information on installation options.

This manual is for use by qualified personnel only.

Optional Equipment

The following options are available for purchase for use with the Xantrex GT100 E to enhance its communications capability. The additional Xantrex GT100 E options can be field installed. Contact a Schneider Electric distributor for further information on installation options.

External Analog Input Requirements

The Xantrex GT100 E has an option for measuring external devices through its 4 analog input lines. These analog lines can be used to measure:

- Irradiance
- PV module temperature

FAX Modem Requirements

The Xantrex GT100 E has an option for a FAX modem. The FAX modem will notify the customer that a fault has occurred with the unit through a FAX machine. The following requirements must be met:

- A direct phone line to the city/country phone service
- The phone line cannot be routed through a Private Branch Exchange (PBX)

GSM Wireless Modem Requirements

The Xantrex GT100 E has an option for a GSM modem. The inverter has the ability to have remote access through the GSM wireless modem.

Customer is responsible for acquiring a Provider of GSM network wireless modem service configured for Circuit Switch Data.

Master/Slave Requirements

The Xantrex GT100 E has an option for two Xantrex GT100 E inverters to connect to one PV array. This allows the Xantrex GT100 E to run at greater efficiency at low power levels.

A system would consist of two - 100 kW inverters, and a DC combiner box.

2 Planning

Chapter 2, “Planning” provides information to help plan the installation of the Xantrex GT100 E 100 kW Grid-Tied Photovoltaic Inverter.

Overview of Xantrex GT100 E Installation

WARNING: Shock hazard

Installations of this equipment should only be performed by qualified technicians. Installers must meet all local and state code requirements for licensing and training for the installation of Electrical Power Systems with AC and DC voltage to 650 volts.

Planning Planning for a system requires complete understanding of all the components that are involved to successfully install the Xantrex GT100 E to meet the required national, state, and local codes.

Definition A power system (such as the Xantrex GT100 E) is a collection of devices designed to supply AC power to the utility grid from a solar energy (PV) source.

Components All types of grid-tied inverter installations, residential or industrial, share common components. This chapter describes each component and suggests the minimum requirements for a safe installation.

Location The Xantrex GT100 E 100 kW Grid-Tied Photovoltaic Inverter is designed to be installed in an indoor location. The Xantrex GT100 E must be anchored to a level, concrete floor or pad.

Clearance Adequate ventilation and service access must be taken into consideration when installing the Xantrex GT100 E. See “Environmental Requirements” for specific clearance requirements and ambient temperature requirements.

PV Planning

To determine the number of photovoltaic panels that are required for the PV power plant, please use the PV planning tool from the Schneider Electric website.

1. Go to www.schneider-electric.com.
2. Open the Products and Services tab and click Renewable Energies.
3. Navigate to your specific product page.
4. Click Sizing Tools.

Environmental Requirements

The following environmental conditions must be established and maintained to ensure the safe and efficient operation and servicing of the Xantrex GT100 E.

- Maintain a minimum clearance of 31 cm (12 in,) plus local safety requirements in front and back of the enclosure for air intake, fan cooling, maintenance and serviceability.
- External cabling enters the Xantrex GT100 E from the bottom. Either the Xantrex GT100 E needs to be placed over a foundation hole which holds the cables, or placed on top of a hollow platform which allows access to the bottom of the Xantrex GT100 E.
- The heat load of the Xantrex GT100 E is approximately 60,000 BTU/Hour at full load. External ventilation or air conditioning should be designed to keep the ambient air outside Xantrex GT100 E enclosure to a maximum of 45 °C (113 °F).

Ground Requirements

This product is intended to be installed as part of a permanently grounded electrical system per National Electric Code ANSI/NFPA 70 and EU requirements as well as all state and local code requirements (for example DIN/VDE). A copper ground rod must be installed within 1 m (3 ft.) of the Xantrex GT100 E enclosure. This is the single point earth ground for the inverter system. The single point ground for the system is to be made at the AC ground bus bar (PE) in the inverter enclosure.

Utility Side Isolation Transformer Requirements

WARNING: Lethal voltage

Grounding the neutral of a Wye-wound transformer may create an “open delta” condition, depending on the utility configuration. This condition may keep the Xantrex GT100 E from detecting a loss of phase condition on the utility system, which may allow potentially lethal voltage to be present on the open-phase wiring.

CAUTION: Equipment damage

If the isolation transformer neutral terminal is tied to ground, it will cause irreparable damage to the Xantrex GT100 E. Check local regulations for their requirements regarding the connection of these neutrals.

The Xantrex GT100 E may be supplied with a custom, high-efficiency, isolation transformer as a separate component. The utility side winding of the isolation transformer may be configured Wye or Delta and must match the voltage at the utility inter-tie. If the utility side winding of the transformer is configured Wye; the neutral connection of the transformer may be connected to the neutral connection on the utility interconnect. Connection of this utility-side neutral does not affect the operation of the inverter. The inverter-side winding of the isolation transformer may also be configured Wye or Delta. If the inverter-side winding of the transformer is configured Wye; the neutral connection of the transformer must be left floating or damage to the inverter will occur. Single-phase, grounded loads which may be present between the transformer and utility, will maintain their existing ground reference at the utility distribution transformer.

Electrical Diagrams

Since installations vary widely, a sample electrical diagram of the Xantrex GT100 E is provided in Figure 2-1. This diagram is to be used for system planning purposes only.

For more detailed information, refer to the schematic illustrations inside the door of the enclosure for electrical schematics.

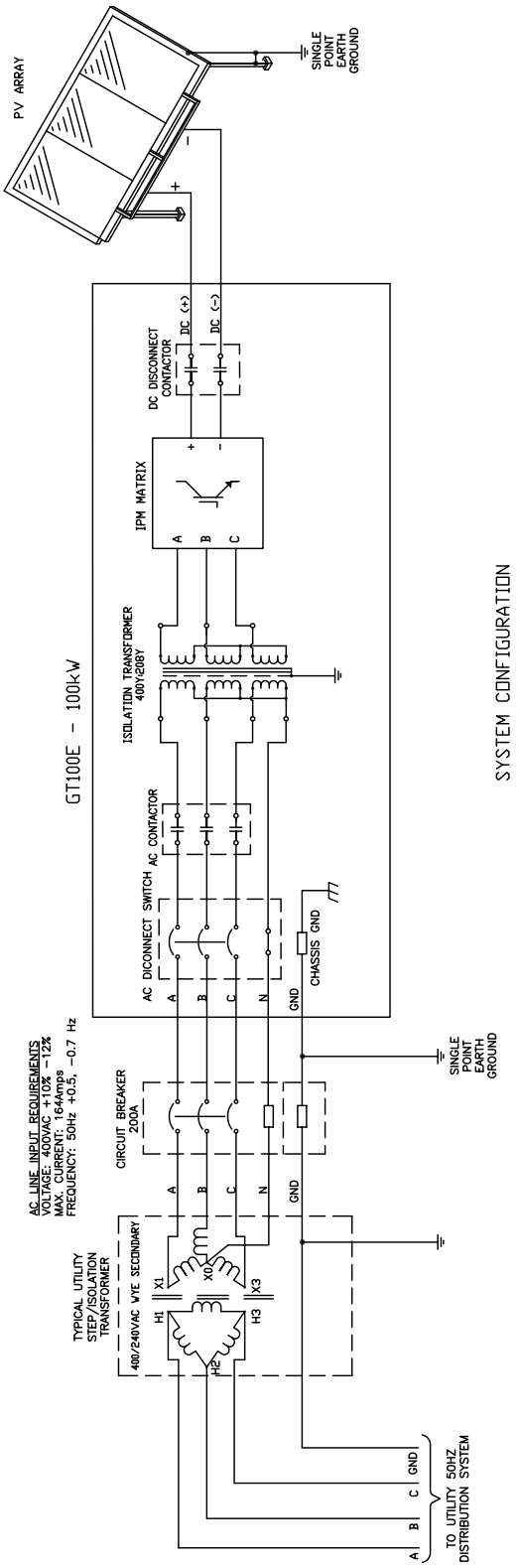


Figure 2-1 Xantrex GT100 E Electrical Diagram

This manual is for use by qualified personnel only.

Conduit Entry

Figure 2-2 shows the maximum allowable area and location in which electrical conduits may penetrate the enclosures of the Xantrex GT100 E.

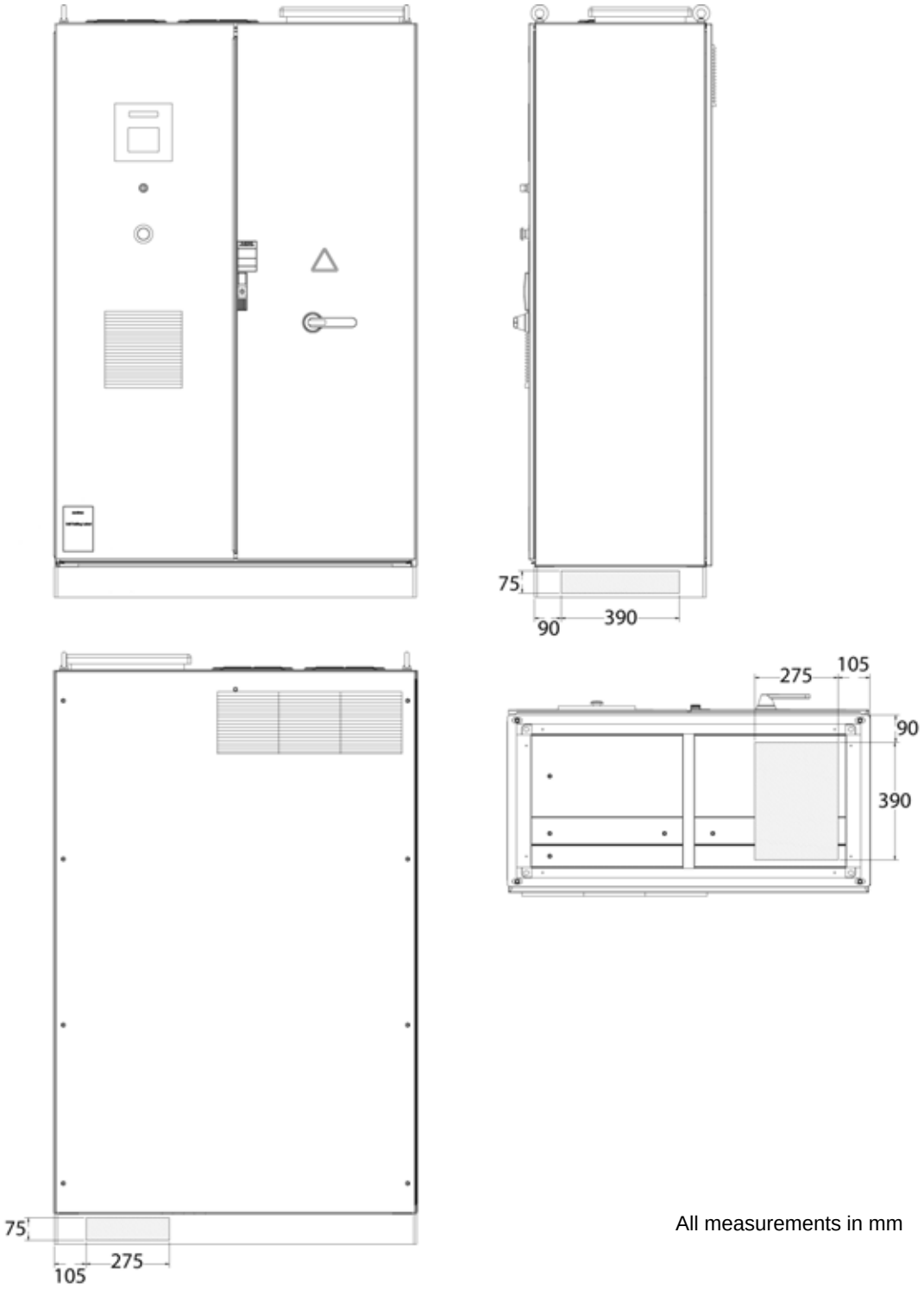


Figure 2-2 Enclosure Conduit Entries, Bottom Side View

This manual is for use by qualified personnel only.

Anchoring the Xantrex GT100 E

The Xantrex GT100 E is designed to be installed in an indoor location. It must be placed on and anchored to a level concrete floor or pad. The concrete floor or pad, upon which the Xantrex GT100 E is anchored, must be structurally designed to meet any local, state, or national requirements for weight, seismic, and wind sheer if applicable.

Twelve 16 mm holes are provided in the feet of the enclosure for anchoring to the floor or pad.

Figure 2-3 depicts the layout pattern of the anchoring holes for the Xantrex GT100 E inverter assembly.

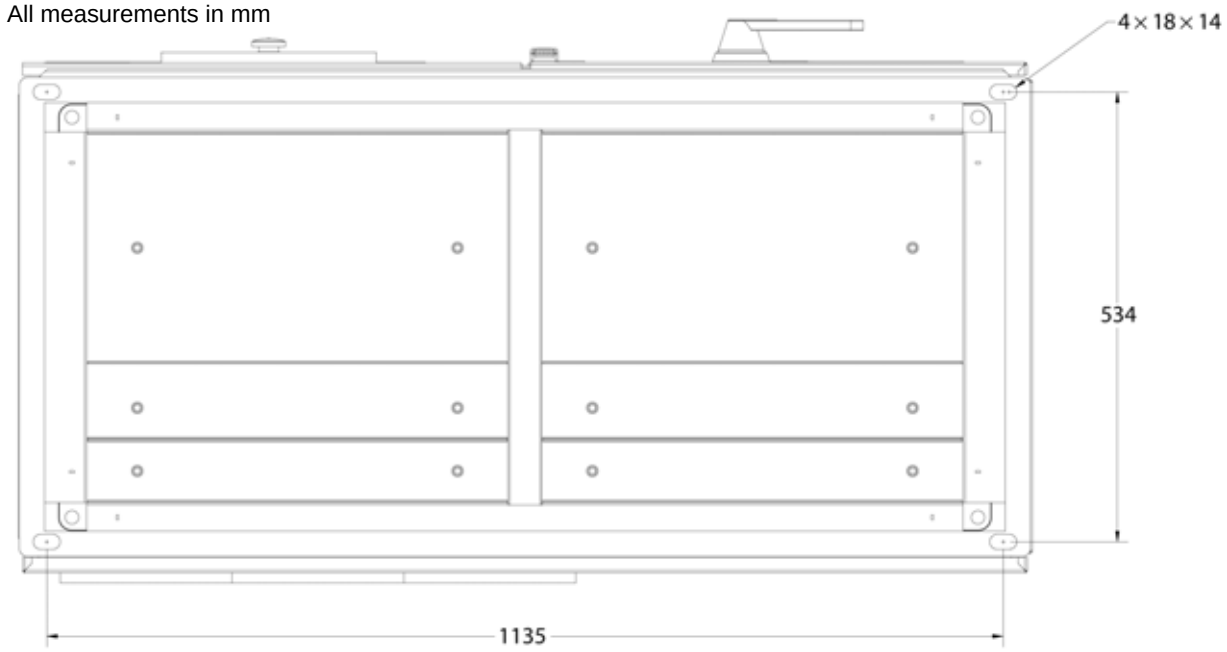


Figure 2-3 Main Inverter Anchor Bolt Pattern (Not to scale)

The floor or pad should either be pre-drilled to accept masonry anchors or have pre-installed anchoring bolts.

This manual is for use by qualified personnel only.

3 Installation

Chapter 3, “Installation” describes the procedures needed to install the Xantrex GT100 E 100 kW Grid-Tied Photovoltaic Inverter. This section includes unpacking and moving instructions, mounting instructions, and cabling instructions.

Unloading

WARNING: Heavy equipment

The Xantrex GT100 E weighs 870 kg. Attempting to lift the equipment by other than the recommended lifting points may damage the equipment or present a personnel safety hazard and void the warranty. Keep the doors closed and latched when moving the inverter enclosures. Leaving the door latches unsecured may result in damage to the unit and void the warranty.

Moving the Shipping Crate and Xantrex GT100 E

Important: Before proceeding with the installation, determine the location and layout of the components, conduit penetration locations, conductor and conduit sizing, and method for anchoring the unit. Ensure adequate space is provided for clearance for ventilation and serviceability. Review Chapter 2, “Planning” if necessary before proceeding.

To move the Xantrex GT100 E while it is still inside the shipping crate:

1. Place the forks of the forklift below the shipping crate at the points specified in Figure 3-1.
2. Lift the Xantrex GT100 E from beneath the shipping crate.
   Be sure to use a forklift with a sufficiently spaced fork span.

Figure 3-1 Forklift Lifting Locations - Underneath Pallet

This manual is for use by qualified personnel only.

Unpacking the Xantrex GT100 E

To unpack the Xantrex GT100 E from the shipping crate:

1. Remove the crate's wood side and top panels.
2. Remove the barrier bag material from the inverter.
3. Remove the inverter's anchor hardware that bolts the inverter to the pallet.

Moving Instructions

To move the Xantrex GT100 E using a forklift:

1. Place the forks of the forklift below the unit at the points specified in Figure 3-2.
2. Lift the Xantrex GT100 E from beneath the enclosure.
   Be sure to use a forklift with a sufficiently spaced fork span.
3. Remove the pallet from underneath the unit.

Figure 3-2 Forklift Lifting Locations - Underneath Unit

This manual is for use by qualified personnel only.

To move the enclosure using the lifting eyebolts:

1. Place the lifting straps onto the eyebolts as shown in Figure 3-3. All four-corner eyebolts must be evenly loaded.
2. Strap the unit such that the angle between the sling and the cabinet top is greater than 60 degrees.
3. Remove the pallet from underneath the unit

Figure 3-3 Eyebolt Lifting Locations - From Above Unit

Mounting and Anchoring the Units

To mount and anchor the Xantrex GT100 E:

1. Predrill the floor or pad to accept masonry anchors for 12 mm bolts, or ensure it has pre-installed anchoring bolts that will fit the 18 mm mounting holes. See Figure 2-3 on page 2–7.
2. Lift the Xantrex GT100 E from beneath with a forklift or pallet jack as shown in Figure 3-2 on page 3–3, or lift the Xantrex GT100 E from above as shown in Figure 3-3 on page 3–4. Move the inverter enclosure into place.
3. Secure the inverter enclosure feet to the floor with the appropriate anchoring hardware.

Figure 3-4 Mounting Locations

This manual is for use by qualified personnel only.

Wiring - General

All wiring methods and materials shall be in accordance with the National Electrical Code ANSI/NFPA 70, European Requirements, as well as all state and local code requirements (for example, DIN / VDE). When sizing conductors and conduits interfacing to the Xantrex GT100 E, both shall be in accordance with the National Electric Code ANSI/NFPA 70, European Requirements, as well as all state and local code requirements (for example DIN / VDE).

WARNING: Shock hazard

The Xantrex GT100 E enclosures contain exposed high-voltage conductors. The enclosure doors should remain closed with the latches tightened, except during installation, maintenance or testing. These servicing instructions are for use by qualified personnel who meet all local and state code requirements for licensing and training for the installation of Electrical Power Systems with AC and DC voltage to 650 volts. To reduce the risk of electric shock, do not perform any servicing other than that specified in the installation instructions unless you are qualified to do so. Do not open the cabinet doors if extreme moisture is present.

WARNING: Lethal voltage

In order to remove all sources of voltage from the Xantrex GT100 E, the incoming power must be de-energized at the source. This may be done at the main utility circuit breaker and by opening the AC disconnect switch on the Xantrex GT100 E. Review the system configuration to determine all of the possible sources of energy. In addition, the source of the auxiliary control power must be de-energized plus allow 20 minutes for the DC bus capacitors, located within the cabinet, to discharge after removing power.

CAUTION: Equipment damage

When connecting external AC wires to the Xantrex GT100 E, positive phasing sequence must be maintained throughout the installation process. Refer to the system schematics in the unit enclosure for proper phasing convention.

Important: Take care to keep the wire bundles away from any sharp edges which may damage wire insulation over time. Consult the European Standards (for example, DIN/VDE) and NEC ANSI/NFPA 70 Code Book to ensure code compliance.

The model Xantrex GT100 E has a three-phase output.

Conductor size should have been pre-determined when the conduit was installed. Prepare the appropriate length conductors for each connection.

Overcurrent Protection

CAUTION: Equipment damage

In accordance with the NEC, ANSI/NFPA 70 (Ninth Edition) the following branch-circuit overcurrent protection must be provided:

- 200A maximum

Unless provided as part of the Schneider Electric supplied equipment; the AC overcurrent protection for the utility interconnect (Grid-tie) must be provided by the installer as part of the Xantrex GT100 E installation.

Conductor Termination

Important: Keep cables together as much as possible, and ensure that all cables pass through the same knockout and conduit fittings, thus allowing any inductive currents to cancel.

The Xantrex GT100 E has terminals and bus bars for making all wiring connections required for the installation. All terminals used for making AC and DC connections require the use of copper conductors with an insulation rating of 90 °C (194 °F) (or higher). For bolt size, and torque values for the AC terminals, see Table A-4 on page A–3. For bolt size, and torque values for the DC terminals, see Table A-5 on page A–3. All wiring methods and materials shall be in accordance with the National Electrical Code ANSI/NFPA 70, European Requirements, as well as all state and local code requirements (for example, DIN / VDE).

AC Interface

The AC line terminals are in the enclosure (A, B, C, N). These terminals require the use of crimp-on type ring-terminals or compression lugs.
See Figure 3-8 on page 3–11 for the location of these terminals.

DC Interface

The DC terminals are in the enclosure (PV+ and PV-). These terminals require the use of crimp-on type ring-terminals or compression lugs.
See Figure 3-7 on page 3–10 for the location of these terminals.

This manual is for use by qualified personnel only.

Grounding

Install a copper ground rod within 1 m (3 ft.) of the Xantrex GT100 E enclosures per the National Electric Code ANSI/NFPA 70. The single-point ground for the system is to be made at the ground bar (TB1) in the main inverter enclosure.

The chassis ground is made at the same bus bar in the main inverter enclosure (TB1) and has a 12 mm bolt for terminating the DC ground. The ground conductor size depends on the size of the main circuit breaker. NEC Table 250.122 (Ninth Edition) requires that the ground conductor be at least #3 AWG for a 400 A circuit breaker and #6 AWG for a 200 A circuit breaker.

The equipment ground on the Xantrex GT100 E is marked with PE.

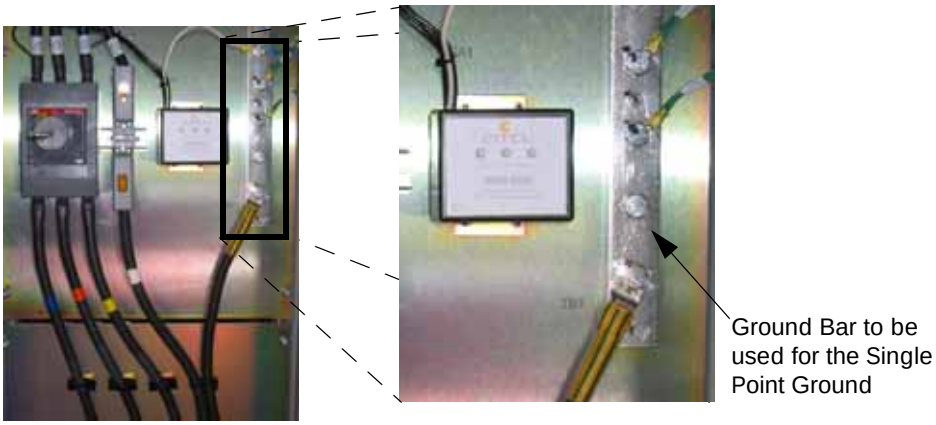


Figure 3-5 Single-point Ground; Ground Bar (TB1)

This manual is for use by qualified personnel only.

Xantrex GT100 E Connections

Use the following descriptions and figures to correctly identify access panels and route wiring.

Input/Output Access Base Panels

Install all the conduits needed for cable entry in the access base panels, see Figure 3-6.

Figure 3-6 Access Panel Locations

This manual is for use by qualified personnel only.

PV Array Connections

WARNING: Fire hazard

To reduce the risk of fire, connect only to a circuit provided with 200 amperes maximum branch circuit overcurrent protection.

CAUTION: Equipment damage

When connecting external AC wires to the Xantrex GT100 E, positive phasing sequence must be maintained throughout the installation process.

CAUTION: Equipment damage

If this is a four-wire installation (A, B, C and ground/neutral) make certain that the Xantrex GT100 E neutral connection on the AC disconnect switch is wired to ground.

To connect the PV array:

1. Remove the DC access panel from the unit.
2. Route the PV array cables through the base access panel and connect the cables to DC (Positive +) and DC (Negative -) terminal on the DC contactor respectively, see Figure 3-7.
3. Secure the PV array cables to the tie wrap mounting terminals using appropriate tie wraps.
4. Reinstall the DC access panel to the unit.

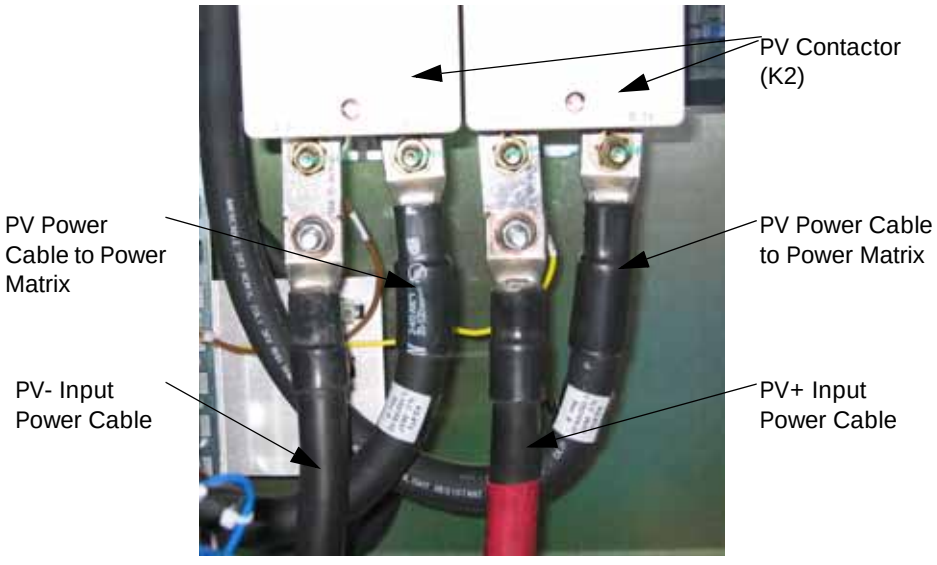


Figure 3-7 PV Array Cable Routing

AC Line Connections

To connect the AC line:

1. Route the line AC (A, B, C and N) cables through the base access panel.
2. Connect the cables to terminals on the AC disconnect switch respectively, see Figure 3-8.
3. Secure the AC line cables to the tie wrap mounting terminals using appropriate tie wraps.

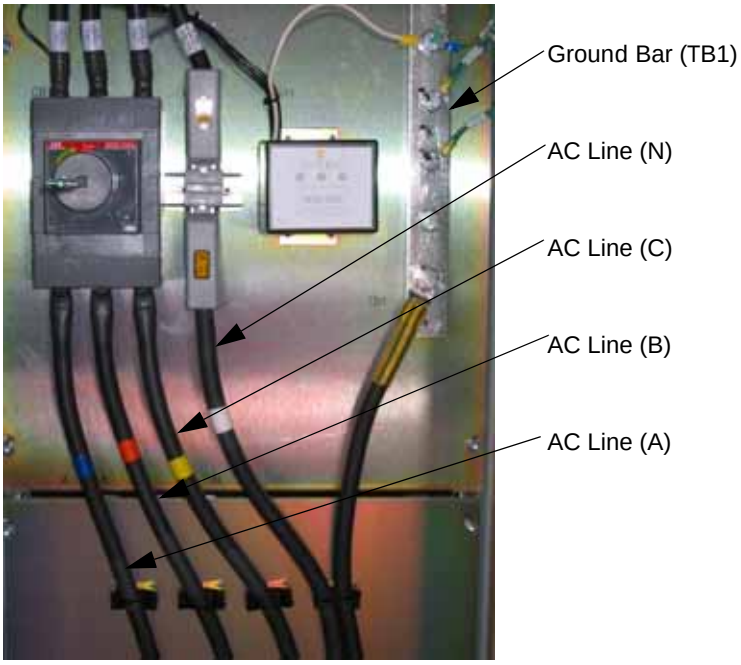


Figure 3-8 Line Cable Routing

Ground Connections

To connect the ground:

1. Install a copper ground rod within 1 meter of the Xantrex GT100 E enclosure. Connect a ground cable to the ground rod.
2. Route the ground cable through the base access panel and connect the cable to the ground terminal block TB1, see Figure 3-8.

This manual is for use by qualified personnel only.

Cable Installation (Optional)

Auxiliary Fan Power Connection

To connect power to the auxiliary fan:

1. Remove the two jumpers on TB3 pins 1-2 and pins 2-3 located on the operator interface panel.
2. Route the auxiliary AC line, neutral and ground wires through the base access panel and connect the wires to the terminal block TB3, AC line to TB3-2, AC neutral to TB3-4, and ground to TB3-5, see Figure 3-9.

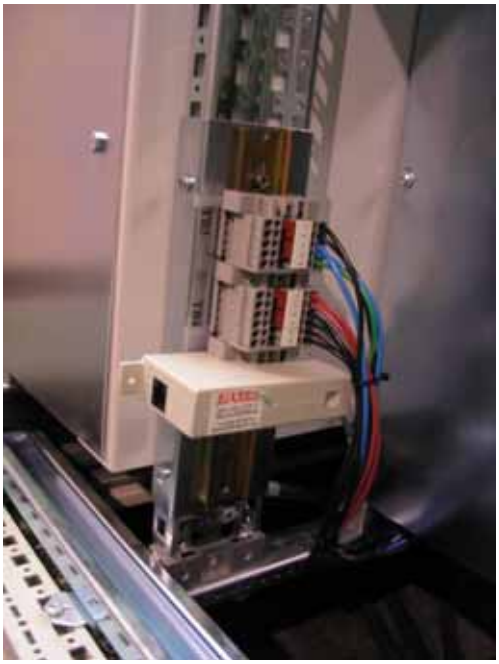


Figure 3-9 Aux, Neutral and Ground Wire Routing

Remote Emergency Switch Connection

To connect the remote emergency switch:

1. Remove the two jumpers on TB4 pins 1-2 and pins 3-4 located on the operator interface panel.
2. Route the remote emergency switch wires through the base access panel and connect the wires to the terminal block TB4.

External Fan Control Connection

To connect the external fan control:

1. Route the external fan control AC line 230 AC wire and the control wire through the base access panel.
2. Connect the wires to the terminal block TB4, 230V AC Line to TB4 pins 5 and fan control wire to TB4 pins 6, see Figure 3-9.

This manual is for use by qualified personnel only.

4 Verification and Commissioning

Chapter 4, “Verification and Commissioning” provides a method for ensuring the installation of the Xantrex GT100 E is correct and complete and provides commissioning procedures.

System Verification

WARNING: Lethal voltage

This chapter describes specific steps to ensure the installation of the Xantrex GT100 E 100 kW Grid-Tied Photovoltaic Inverter is correct and complete. Failure to adhere to these warnings could result in severe shock or possible death. Exercise extreme caution at all times to prevent accidents. These installation instructions are for use by those familiar and skilled with high voltage procedures.

WARNING: Shock hazard

The Xantrex GT100 E enclosures contain exposed high-voltage conductors. The enclosure doors should remain closed with the latches tightened, except during installation, maintenance or testing. To reduce the risk of electric shock, do not perform any servicing other than that specified in the installation instructions unless you are qualified to do so.

WARNING: Lethal voltage

In order to remove all sources of voltage from the Xantrex GT100 E, the incoming power must be de-energized at the source. This may be done at the utility main circuit breaker and by opening the AC disconnect switch on the Xantrex GT100 E. Review the system configuration to determine all of the possible sources of energy. In addition, the source of the Auxiliary Control Power must be de-energized and also allow 20 minutes for the DC bus capacitors, located within the cabinet, to discharge after removing power.

The following procedures are intended to verify correct installation and proper wiring of the Xantrex GT100 E. Prior to performing the following verification steps on the Xantrex GT100 E, review all safety requirements and procedures outlined in this manual and on any cautionary markings on the components within the system.

This procedure must be performed by an approved Technician.

These steps are to be followed sequentially. Do not continue if any of the steps or results are unclear. Refer to Xantrex GT100 E 100 kW Grid-Tied Photovoltaic Inverter Operation and Maintenance Manual (Part # 152365)for a detailed description of system operation and for fault condition descriptions and troubleshooting. Refer to the system schematics for detailed information.

Inspect the following items prior to completion of the installation:

1. Visually inspect all the mechanical connections. This would include both electrical conduit fittings, as well as enclosure anchoring and seismic bracing if required.
2. Visually inspect the electrical connections and verify proper tightness of all terminations.

3. Visually inspect the utility transformer connections. If the inverter-side winding of the transformer is configured Wye; ensure the transformer neutral connection is left disconnected or floating. The neutral connection of the transformer must be left disconnected or floating or damage to the inverter will occur.
4. Perform corrective actions if required.

To perform a system verification of the Xantrex GT100 E:

1. Verify 400 Vac voltage across the bottom of the AC disconnect switch. If a phase rotation meter is available, verify proper phase rotation at the AC disconnect switch.
2. Close the door of the enclosure.
3. Close the AC disconnect switch.
4. Upon applying 400 Vac power to the Xantrex GT100 E, observe the operator interface panel. After approximately 20 seconds, the panel should finish initialization and will probably report a fault.
5. Remedy any faults reported. To clear a fault condition, press the <ENTER> key twice.
6. It takes about 5 seconds for the fault to clear on the front panel. Once all faults are cleared the system will read 'Key switch Disable'. If the fault message does not change, the fault condition is still present. Refer to Xantrex GT100 E 100 kW Grid-Tied Photovoltaic Inverter Operation and Maintenance Manual (Part # 152365) Troubleshooting chapter for fault information.
7. Close the PV array string disconnect switches.
8. Place the ON/OFF switch into the ON position.
9. Press <F2> on the operator interface panel. If the PV voltage is above the PV start Voltage set point, the second line should read 'Waking up'. Once the PV Start Time is exceeded, the Xantrex GT100 E should transition to 'Power Tracking'.

Power Tracker Fine Tuning

Important: Some field adjustable parameters are password protected and may only be changed by trained service technicians. In particular are parameters relating to utility protection setpoints. Any changes to these setpoints should be agreed upon by the local utility and the equipment owner.

All Xantrex GT100 E operating parameters have been set at the factory, based upon prior experience with PV arrays. Contact your Schneider Electric distributor for further information.

It is recommended that the Xantrex GT100 E be watched during Wake-Up and Sleep Test. If the Xantrex GT100 E cycles between operating and sleeping at either of these times, the condition set points are not set properly. Refer to Xantrex GT100 E 100 kW Grid-Tied Photovoltaic Inverter Operation and Maintenance Manual (Part # 152365) for detailed descriptions of Xantrex GT100 E state transitions. The Xantrex GT100 E should not cycle if the set points are set properly.

This manual is for use by qualified personnel only.

Commissioning Procedure

Important: It is important to record any issues encountered while following this procedure.

This section provides the procedure necessary to safely and correctly commission a Xantrex GT100 E inverter.

To commission the Xantrex GT100 E:

1. Ensure the system verification tests have been completed and have passed successfully.
2. Begin the Xantrex GT100 E commissioning procedure as described in detail further in this section. The steps are summarized below.
   a) Record the serial number.
   b) Inspect Xantrex GT100 E inverter enclosure.
   c) Verify AC and DC voltages.
   d) Apply grid voltage.
   e) Check the front panel display.
   f) Confirm operational parameters (AC, DC and power tracker).
   g) Apply DC voltage.
   h) Perform the matrix test.
   i) Operate inverter.
3. Submit the commissioning test record and fax a copy of the product registration form to Schneider Electric. Both forms are in the Warranty section of the Xantrex GT100 E 100 kW Grid-Tied Photovoltaic Inverter Operation and Maintenance Manual (Part # 152365).

Starting the Commissioning Test

Enter the information required on the form in Appendix B, “Commissioning Test Record”. The converter serial number is located on a label placed on the lower-left front of the inverter enclosure door.

To inspect the inverter enclosure:

1. Open both doors of the Xantrex GT100 E inverter enclosure and inspect the connections.
2. Check for loose cables, rubbing, or interference.
3. Correct and record any defects.

To verify AC voltage:

1. Verify that the grid AC cables have been installed at A, B, C, and N within the AC interface.
2. With a voltmeter, verify if AC grid voltage is present at the bottom of A, B, C, and N (400 Vac). These terminals are located in the AC interface.
3. If grid voltage is not available to the unit, close and lock the Xantrex GT100 E inverter enclosure. The commissioning test procedure must cease at this point. Do not attempt to continue the test until each step can be checked and verified.

To verify DC voltage:

1. Verify that the PV DC cables have been installed correctly within the DC interface.
2. With a voltmeter, verify if PV DC voltage is present at the bottom of the K2 contactor.
3. Verify the correct polarity.
4. If the voltage is not present, contact the installer, site electrician or site operator to supply PV voltage to the unit.
5. If PV DC voltage is not available to the unit, close and lock the Xantrex GT100 E inverter enclosure. The commissioning test procedure must cease at this point. Do not attempt to continue the test until each step can be checked and verified.

To apply grid voltage:

1. Verify both Xantrex GT100 E inverter enclosure doors are closed and locked.
2. Close the AC disconnect. This energizes the control power circuits.
3. Look, listen and smell for signs of defects.
4. Record any defects found.

To verify the front panel display:

1. Open then close the AC disconnect and look at the front panel display. It displays the software versions both of the CCU2 and front panel within the read menu. Record these numbers.
2. After about 20 seconds the Xantrex GT100 E is in “ready” mode. If any alarms are present, refer to the Troubleshooting Chapter in your Xantrex GT100 E 100 kW Grid-Tied Photovoltaic Inverter Operation and Maintenance Manual (Part # 152365).
3. Once all faults are clear, the front panel should report “Switched Off” and show Inverter Status.
4. Using the \/ key, scroll down in the read menu and verify that the time and date are correct.
5. If the time and date are not correct, refer to the Xantrex GT100 E 100 kW Grid-Tied Photovoltaic Inverter Operation and Maintenance Manual (Part # 152365).
6. Scroll thorough the parameters and verify that they are present.

To confirm AC operational parameters:

1. For each of the following steps, refer to front panel display.
1. Access the write menu parameter list by pressing <MENU>. Using the \/ key, scroll down in the write menu and verify the parameter settings.
2. Verify the inverter’s AC limits.
3. Make any necessary changes.
4. Record these values.

To confirm DC operational parameters:

1. Verify the inverter’s PV settings.
2. Make any necessary changes.
3. Record these values.

To confirm power tracker configuration operational parameters:

1. Verify the inverter’s power tracker configuration.
2. Make any necessary changes.
3. Record these values.

To verify inverter operation:

1. Make sure all doors are closed and locked.
2. Using the front panel user interface or the PV View GUI, set the I PPT Max percent to 10%.
3. Place the ON/OFF switch in the ON position. If the PV voltage is above PV start voltage threshold, followed by a 5-minute delay period, the PV contactors (K2) closes, followed by the main AC contactor (K1). The inverter begins to produce power up to 10% of rated power.
4. Look, listen and smell for any defects.
5. Make sure the internal enclosure fans are operating.
6. If everything is okay, increase the I PPT Max until you reach 100%.

7. Check all the operating data with the GUI or front panel. Record any irregularities.
8. Let the inverter run.
9. Verify the matrix fans operate after the matrix temperature reaches at least 30°C, and the "INV kW" is at least 30 kW.

To complete the commissioning:

1. Once you have successfully completed all the commissioning steps, ensure all the information is documented.
2. Fax a copy of the product registration form to Schneider Electric. The form is in the Warranty section of the Xantrex GT100 E 100 kW Grid-Tied Photovoltaic Inverter Operation and Maintenance Manual (Part # 152365).

A Specifications

Appendix A contains the specifications for the Xantrex GT100 E 100 kW Grid-Tied Photovoltaic Inverter.

The Xantrex GT100 E has been designed for photovoltaic power systems, which operate within the following specifications. Application of the Xantrex GT100 E in a manner inconsistent with these specifications may cause damage to the Xantrex GT100 E and other system components, and is a violation of the terms of the warranty.

Specifications are subject to change.

System Specifications

The Xantrex GT100 E has been designed for photovoltaic power systems, which operate within the following specifications.

CAUTION: Equipment damage

Operation of the Xantrex GT100 E in a manner other than specified in this manual may cause damage to the Xantrex GT100 E and other system components and will void the terms of the warranty.

Environmental Specifications

CAUTION: Environmental damage

The Xantrex GT100 E will be destroyed if stored outside. Only store in dry areas.

Table A-1 Environmental Specifications

Operating Temperature	-10[a] to 45° C
Storage Temperature	-40 to 50° C
Maximum Ambient Temperature Rating	45° C
Relative Humidity	To 90%, Non-condensing
Elevation	Derated above 2000 m
Dimensions (mm)	1905 x 1205 x 606
Weight	870 kg
Enclosure Type	IP21

a.If ambient temperature is between -10 to 0° C, the unit must be powered up in standby for at least one hour prior to going on-line.

Electrical Specifications

Table A-2 provides the AC and DC specifications for the Xantrex GT100 E.

Table A-2 Electrical Specifications

Nominal AC Line Voltage	400 Vac (+10%/-12%)
Maximum AC Line Current	164 ARMS (at low line voltage)
Nominal Line Frequency	50 Hz, +0.5 -0.7 Hz
Output Power	100.0kW
Max. Open Circuit Voltage	650 Vdc
Peak Power Tracking Window	300-650 Vdc
PV Minimum Peak Power Tracking Voltage	300 Vdc
Maximum PV Current	347 ADC

Regulatory Specifications

Table A-3 provides the regulatory specifications for the Xantrex GT100 E.

Table A-3 Regulatory Specifications

Standard	Regulation Met
General Standards	EN50178 VDEW CE
Emitted Interference	EN61000-6-4
Interference Resistance	EN61000-6-2

Torque and Wire Gauge Specifications

Use the following torque specifications on all electrical interfaces made during installation of the Xantrex GT100 E.

Table A-4 Torque Requirements

Type	Torque Setting
AC Terminal Lugs – 8mm Hex	20.0Nm
M10 Bolt (DC + and DC-)	40.0Nm

The following table shows acceptable wire sizes to be connected to the Xantrex GT100 E 100 kW Grid-Tied Photovoltaic Inverter AC and DC inputs.

Table A-5 Terminations and Wire Requirements

Terminal-Connections	Wire Size
AC Terminal Lugs	Up to 120 mm^2
Compression Lug (DC+ and DC-)	Up to 300 mm^2

Specifications for Options

The Xantrex GT100 E has the Option to connect an external AC line to power the internal fans of the unit, TB3.

Table A-6 Auxiliary AC Line Requirements

Nominal Aux. AC Line Voltage	230 Vac, +10%-12%
Maximum Aux. AC Line Current	4 Amps

The Xantrex GT100 E has the option to connect to an external remote emergency switch to the unit, TB4.

Table A-7 Remote Emergency Switch Requirements

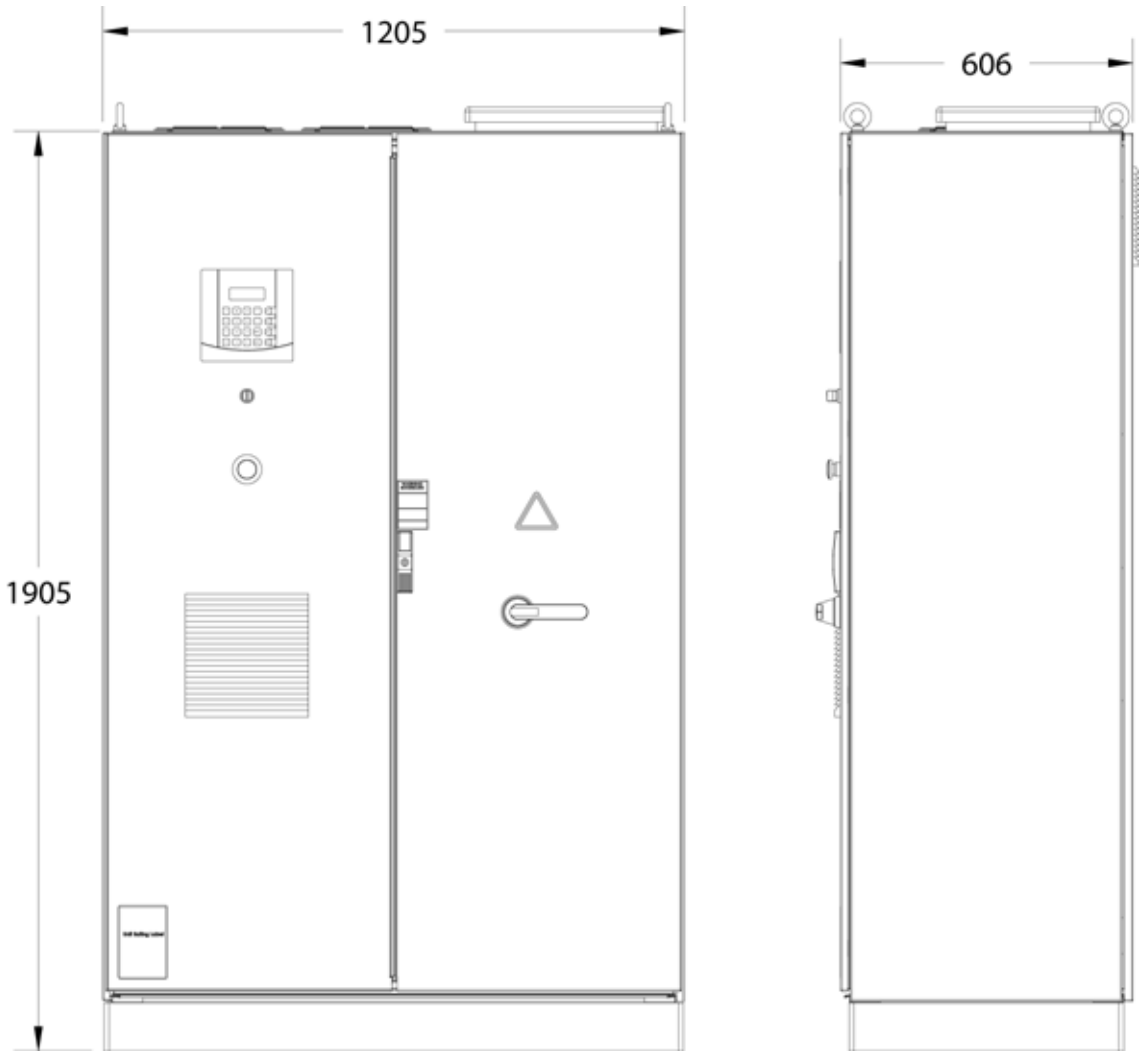
Remote Emergency Switch	No external power applied to the TB4 1 -4

The Xantrex GT100 E has the option to connect an external fan control contactor/ unit to the unit, TB4.

Table A-8 External Fan Control Requirements

External Fan Control Voltage TB4 5-6	230 Vac +10%-12%
Maximum External Fan Control Current TB4 5-6	2 Amps

Dimensions



Dimensions in mm

Figure A-1 Xantrex GT100 E Dimensions

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B

Commissioning Test Record

Appendix B, “Commissioning Test Record” contains the form to be filled out in order to keep a record of the commissioning test results for the Xantrex GT100 E 100 kW Grid-Tied Photovoltaic Inverter.

Commissioning Test Record

Step 1. Record and Document Serial Number and Inverter Location	
Date and Time of Commissioning:	
Inverter Serial Number:	Technician Name:
CCU2 Board Serial Number:	Company Name:
Inverter Location: Bldg. #	Contact Email:
Address:	City: State:

Step 2. Installation and Cable Check	
Power Conductors installed correctly: Yes ❑	Terminations are properly torqued: Yes ❑

Step 3. Verify AC Utility Voltage at CB1	
A-B Measurement:	B-C Measurement:
C-A Measurement:	Phase Rotation: CW

Step 4. Verify DC PV Voltage at PV Contactor - K2	
Pos - Neg Measurement: _____Vdc.	DC Polarity is correct: Yes ❑

Step 5. Apply AC Grid Voltage to the Xantrex GT100 E	
Control Power circuits energized: Yes ❑	
Notes:	

Step 6. Confirm Operation of Universal Frontpanel Control Unit	
User Interface Boots and Displays correctly: Yes ❑	
Software version (CCU2 SW):	Software version (UFCU SW):
Notes:	

Step 7. Confirm Write Menu Parameters for AC Limits	
Max AC Volts %:	Min AC Volts %:
Max AC Frequency:	Min AC Frequency:
Max GND Fault:	
Notes:	

Step 8. Confirm Write Menu Parameters for PV Settings	
PV V Start:	PV T Start:
PV P Stop:	PV T Stop:
Notes:	

Step 9. Confirm Write Menu Parameters for Power Tracker Configuration	
PPT V Ref:	I PPT Max %:
PPT Enable:	PPT Rate:
PPT V Rate:	
Notes:	

Step 10. Operate the Xantrex GT100 E in Power Tracking Mode	
I PPT Max% initially set to10 %: Yes ❑	I PPT Max % gradually increased to 100 %: Yes ❑
Xantrex GT100 E operates correctly: Yes ❑	
Notes:	

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CE Declaration of Conformity

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CE Declaration of Conformity
EG Konformitätserklärung
Declaración de conformidad con CE

Product Type:	**Photovoltaic Grid Tie Inverter, 100kW, 400V AC, 3 ~, 50 Hz**
Produkt Typ:	**Solarwechselrichter fuer Netzparallelbetrieb, 100kW, 400V AC, 3~, 50Hz**
Tipo de producto:	**Inversor fotovoltaico para conexión a la red, 100kW, 400V CA, 3 ~, 50 Hz**

Model / Modell / Modelo: **GT100E Grid Tie Inverter**

This product complies with and is CE-marked under the following Directives:
Dieses Produkt entspricht den nachstehend aufgeführten Richtlinien der europäischen Union:
Este producto cumple y tiene la marca CE, bajo las siguientes directivas:

EMC Directive 89/336/EEC
EMV Richtlinie 89/336/EWG
Directiva de compatibilidad electromagnética 89/336/EEC

Low Voltage Directive 73/23/EEC as last amended by EEC Directive 93/68/EEC
Niederspannungs-Richtlinie 73/23/EWG zuletzt geänderte durch Richtlinie 93/68/EWG
Directiva de baja tensión 73/23/EEC enmendada por Directiva 93/68/ECC

Compliance of these products with the above Directives is confirmed through the application of the following harmonized standards:
Die folgenden Normen wurden u. a. für die Überprüfung der Übereinstimmung mit diesen Richtlinien herangezogen:
Se confirma que el producto cumple las directivas mediante la aplicación de las siguientes normas harmonizadas:

EN 61000-6-4: 2001	**Emission for Industrial Environment** **Störaussendung für Industriebereich** **Emisión en entorno industrial**
EN 61000-6-2: 1999	**Immunity for Industrial Environment** **Störfestigkeit für Industriebereich** **Inmunidad en entorno industrial**
EN 50178: 1998	**Electronic Equipment for use in power installations** **Ausrüstung von Starkstromanlagen mit elektronischen Betriebsmitteln** **Equipos electrónicos para uso en instalaciones generadoras de energía**

Manufactured by: / Hersteller: / Fabricado por:
Xantrex Technology Inc., 5916 -195th Street NE, Arlington, WA 98223, USA

Authorized European representative: / Bevollmächtigter Europäischer Vertreter: / Representante europeo autorizado:
Xantrex Technology, S.L., Constitución 3, 4º 2ª, 08960 Sant Just Desvern, Barcelona, Spain

The certification process was conducted by: / Das Zertifizierungverfahren wurde durchgeführt von: / El proceso de certificación ha sido controlado por:
TUV Rheinland of North America Inc., 1279 Quarry Lane, Pleasanton, CA 94566, USA

Year of certification, Jahr der Zertifizierung / Año de certificación:
2003

This declaration is issued under the sole responsibility of the manufacturer.
Diese Erklärung wird unter der alleinigen Verantwortlichkeit des Herstellers herausgegeben.
Se emite esta declaración bajo la única responsabilidad del fabricante.

Douglas Blodgett

Douglas Blodgett, Director of Engineering

Date / Datum / Fecha: August 02, 2004

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